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TACHYGYIA, THE GIANT TONGAN SKINK: EXTINCT OR EXTANT?

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(Dedicated to the memory of John R. H. Gibbons, who searched the central Pacific for known and unknown lizards.)

ABSTRACT: The giant tongan skink, *Tachygyia microlepis*, is known from only two specimens held in France's National Museum of Natural History, in Paris, and collected in the early 19th century. Possible recent sightings of this lizard are reported and explained. They almost certainly correspond to another species, *Emoia trossula*. Available evidence indicates that *Tachygyia* is now extinct on Tongatapu, but we cannot conclude this conclusively.

INTRODUCTION

An assortment of giant reptiles once lived on the widely scattered islands of Oceania. In the east, giant tortoises occurred on all of the Galapagos Islands. The surviving tortoises share the Galapagos with several large species of iguanas, *Conolophus* inland and *Amblyrhynchus* along the coast. On the western Pacific islands, no lizards match the Galapagos iguanas in size, but giant geckos, *Rhacodactylus* of New Caledonia and *Hoplodactylus* from New Zealand, surpass the maximum size of any other geckos.

Less well known are the giant skinks of the Pacific, *Phoboscincus* and *Tachygyia* (these two genera are considered synonyms of *Eugongylus* by some systematists, e.g., Böhme 1976). These skinks are giants in a relative sense, being the largest ones in the Pacific. *Phoboscincus*, of New Caledonia, has two species, both reaching total lengths of more than 500 mm (*P. bocourti*, 280 mm snout–vent length [SVL]) and 400 mm (*P. garnieri*, 200 mm SVL). The species *P. bocourti* is known from only a single specimen, with "New Caledonia" as its location of origin, plus possible sightings in the 1980's (see Bauer and Vindum 1990: 35). The species *P. garnieri* is somewhat better known, represented by eight specimens in European museums. One of these (Paris MNHN 1989.13) was recently found on a mine track at Mont Mou, in southwestern New Caledonia; this specimen is 210 mm long (165

mm SVL). Another recent specimen is in the Australian Museum, and was collected in 1992 by Ross Sadlier and Aaron Bauer in northeast New Caledonia. Both recently collected specimens proves the survival of this giant skink.

In the central Pacific, Fiji possesses an iguana, small (220 mm SVL) when compared to its American relatives, but the giant of the local lizard fauna. Tonga has another giant, the skink *Tachygyia microlepis*. *Tachygyia* is known from only two specimens, collected by Jean René Constant Quoy and Joseph Paul Gaimard, two famous "médecins-naturalistes" of the 19th century French Navy. Between 1817 and 1820 they traveled with Louis Claude Desaulses de Freycinet on the *L'Uranie* circumnavigation and scientific exploration of the world. Later, from 1826 to 1829, on their second circumnavigatory exploration with Jules Sébastien César Dumont d'Urville, on the frigate *L'Astrolabe* (formerly named *La Coquille*), they collected both specimens of *Tachygyia* and brought them back to Paris. There is little likelihood of an error concerning the origin of these specimens, although these giant skinks are not mentioned in the travelogue of Dumont d'Urville (1830–1833); he reports only a sea snake collected at Tongatapu (Vol. IV: 331–4).

The two *Tachygyia* could not have come from New Zealand because Quoy and Gaimard state (in Dumont d'Urville 1830–1833: Vol. II: 592): "Sauf quelques petites espèces de lézards, nous ne connaissons point d'autres reptile (sic)" about their experiences in New Zealand. The French expedition spent one month in Tonga (April 20–May 21, 1827), and although they made no comment on any lizards, they had adequate time to explore the islands.

Since the initial discovery of the giant Tongan skink, no additional specimens are known to have been collected. During his 1985 teaching tour in Tonga, John R. H. Gibbons searched for *Tachygyia*, and even offered a reward (Fig. 1). He did not have an opportunity to report his findings before his and his family's tragic deaths. Since he discussed his search for the giant skink with both authors, we wish to summarize his findings in this paper.

POSSIBLE RECENT SIGHTINGS OF *TACHYGYIA*

Gibbons visited Tongatapu and 'Eua in January and October, 1985. While his visits were brief on both islands, he collected over 90 lizards. As an aside, his inquiries about large lizards revealed that *Brachylophus fasciatus* still survives on Tongatapu (although he observed none), but that, within memory of his witnesses, *Brachylophus* has not been seen on 'Eua.

Much of Tongatapu has been drastically altered by a millenium of human occupation and agriculture. A single stand of native forest remains in south-central Tongatapu, between Tupou College and the airport. It has also been modified, but owing to its use as a religious site in pre-European times, the Tongans continue to preserve it as a forest. As the only remaining area of

4—TONGA CHRONICLE February 21, 1986.

If You See A Grey Ghost, Don't Run, Take Its Photo

A grey ghost last seen here nearly 150 years ago may be stalking about Tongatapu. A University of the South Pacific specialist is determined to track it down.

The grey ghost is actually a lizard with the jawbreaking scientific name of *Tachygyia microlepis*. Only two specimens have ever been found. Both were collected on Tongatapu by a French expedition in the 1830s and are presently preserved in a Paris museum.

Meanwhile, Dr John R H. Gibbons, a researcher and lecturer in the Biology Department, School of Pure and Applied Sciences at the USP Laucala campus in Suva, Fiji, has been in the Kingdom black markings.

Last October Dr Gibbons and students of Tupou College conducted a search for the grey ghost between the college and Fua'amotu within the last stand of native Tongatapu forest. Although they found specimens of 10 of the 11 lizard species known to inhabit the island, they did not find the grey ghost.

Rare as it apparently is, the ghost figures in Tongan legends. According to one, sighting it is an omen of a major family event, such as a wedding or funeral. The lizard also figures in a legend associated with the founding of the noble family of the Hon. Fakafanua, Governor of Ha'apai.

Dr Gibbons believes that the grey ghost and other lizards were once abundant on Tongatapu. But, as more and more bushland has been taken over for plantations and with the introduction of cats and rats to the island, only "a tiny remnant" remains.

Dr Gibbons, who plans to return to Fiji on Saturday, has requested that anyone who can photograph the grey ghost or collect a specimen contact Mr Jim Foster of Tonga High School. Mr Foster can be reached after school hours at Govt Qtr 76, Taufa'ahau Road. A $100 reward is being offered for photograph or specimen proved to be the grey ghost.

NOTICE

$100 REWARD
for specimen of reptile known as
THE GREY GHOST, MOKO LAHI, or TACHYGIA MICROLEPIS

The lizard is thought to be 50-60cm from head to tail. Only two have ever been found in the world. These were collected on Tongatapu in the 1830s by a French expedition. Their remains are now housed in a Paris museum.

The body colour is thought to be dull grey and the shape like a giant *pili pili*. The reptile probably lives underground, only coming out at night or after a heavy rain. Little else is known about it.

We hope to find out if the lizard still lives in Tonga. If so, we would like to collect as many specimens as possible as part of a USP survey on reptiles (*moko, ngata, fonu, fokai,* etc.) of Fiji, Samoa, and Tonga.

Telephone Mr Jim Foster of Tonga High School or call at Govt Qtr 76, Taufa'ahau Road (opposite Royal Tombs) after 4p.m. with any specimens or evidence you may find.

If you have collected a specimen likely to be identified as the grey ghost, it will be sent to the USP in Suva and your reward will be paid by return post.

FIG. 1.—Extract from the *Tongan Chronicle* of February 21, 1986, showing John Gibbons' *Tachygyia* reward notice.

native vegetation, Gibbons chose it for an intensive search. On October 22, he and several Tupou College students "combed" the forest for lizards, and found many of the known Tongatapu species: *Gehyra oceanica, Gehyra mutilata, Lepidodactylus lugubris, Hemidactylus garnotii, Nactus pelagicus, Emoia cyanura* sensu lato, and *Lipinia noctua.* Only *Cryptoblepharus eximius* (a coastal species), *Hemiphyllodactylus typus* (often a human commensal) and *Emoia trossula* were not encountered. The latter species is, however, represented by a preserved specimen in the Tupou College collection.

Even though the physical search for *Tachygyia* failed, Gibbons's inquiries indicated the existence of very large skinks on Tongatapu. For various reasons, most notably lack of detail and suspected unreliability of the witnesses, Gibbons considered only three accounts worth reporting.

The best description derives from Lannon Oldenburg, an American gardener cultivating an area near Tupou College. Oldenburg stated that he saw a large lizard (250–280 mm SVL) running along the ground in his plantation. The lizard was dull green with blackish markings dorsally. Tail length was two thirds or more of SVL. The body was not especially thick (ca. 25 mm diameter), and there was no middorsal ridge or crest.

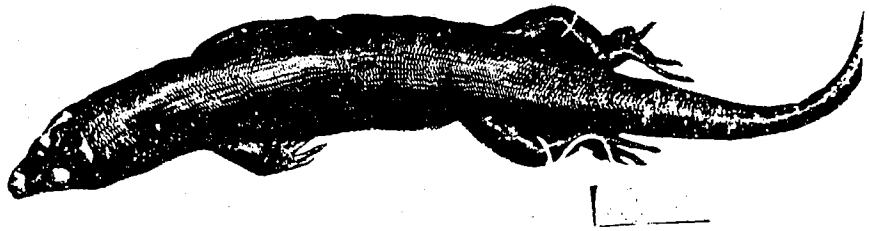

FIG. 2.—One of the two existing specimens of *Tachygyia microlepis* located in the National Museum of Natural History, in Paris. MNHN 2919, total length = 323 mm.

A second eyewitness was Peter Chignell, a retired New Zealand headmaster currently assisting with a Tongan prison rehabilitation program. He stated that, during the cutting and burning of high grass and scrub near a small, isolated stand of forest (near the airport, and about 3,000 feet [1 km] from the larger patch of forest noted above), he observed a large lizard. It was greenish with black markings, and about 35 mm in body diameter. It ran rapidly towards the forest patch and away from the fire. Significantly, this small wooded area and the larger surrounding grassy area is much feared and largely avoided by Tongans. The area is avoided because it contains a large, ancient burial mound of about 300 Tongan nobles (Peter Chignell, personal communication to John Gibbons). The sighting of the large lizard took place very close to this mound, and about 150 feet (50 m) from the small woods.

The third account comes from a Tongan student (1986, personal communication to John Gibbons). He stated that a very large lizard or *moko,* not a *fokai* (iguana), is occasionally seen on Tongatapu. If a person sees this huge *moko,* it is a sign that something significant will happen in his or her family, such as a death or a marriage.

The above reports indicate the presence of a large, terrestrial lizard on Tongatapu that is very rare, of restricted distribution, and unknown to most Tongans. Unquestionably, it is not the iguana or *fokai,* as *Brachylophus fasciatus* is highly arboreal, has a distinct middorsal crest, and, although green, lacks the dorsal black markings. Gibbons thought that these three observations indicated the survival of *Tachygyia.* We believe the other candidate is the skink, *Emoia trossula.* It is normally olive brown, but many individuals have dark marks on the back; however, *E. trossula* seldom exceeds 160 mm total length. Despite the size discrepancy, *E. trossula* is more likely to be described as running, whereas *Tachygyia* would appear to be crawling. According to an examination of the Paris specimens (Fig. 2), *Tachygyia* is/was probably dark brown, as are its *Eugongylus* relatives, and without black markings on the back.

Discussion and Conclusions

The herpetofauna of Tongatapu is a remnant of its original composition 200 years ago and earlier, especially for the larger lizards. The original forests were largely destroyed by the Polynesians, and now the entire island is covered nearly completely by plantations, gardens, and human housing; only a few small stands of secondary forest remain. Second, domestic cats and rats (*Rattus rattus* and *R. norvegicus*) were introduced by Tasman (1643) and Cook (1770's), and/or by subsequent European expeditions. Detailed accounts of early European contacts within Tonga is given by Langdon (1977). These predators often have a devastating effect on naive native reptiles. Populations of feral domestic cats are now established on virtually every inhabited island in Tonga. A large, ground-dwelling lizard such as *Tachygyia* would have experienced heavy and continual predation from these introduced predators.

The authors recently (October 1993) had an opportunity to search for *Tachygyia* on 'Eua and Tongatapu. Based on the habits of *Tachygyia*'s relatives in New Caledonia and New Guinea, it was a semi-fossorial, forest-floor inhabitant. There are few stands of forest on Tongatapu today. All stands are secondary growth forest, and are highly disturbed by foraging pigs. It seems most unlikely that a semi-fossorial lizard could survive under these circumstances. Therefore, we now agree with Rinke (1986: 150) that the giant Tongan skink is extinct on Tongatapu. However, giant scincoid anguid lizards have managed to survive in the West Indies despite cats, rats, pigs, and mongooses (James D. Lazell, personal communication). If *Tachygyia* occured on 'Eua, sufficient undisturbed forest remains for its continual survival there.

Circumstantial evidence suggests that *Tachygyia* was a common food item for the Tongans. La Billardière (1800: 340), during his visit to Tongatapu in 1793, refers to lizards. He stated that Tongans offered captured "*lacerta amboinensis,*" and it was very good to eat. Gibbons (1981: 256) assumed that these were the iguana *Brachylophus*. It is also possible that these food-lizards were *Tachygyia*. Evidently, La Billardière coined the term "*lacerta amboinensis*" on account of their similarity in shape and size to lizards previously seen on Ambon Island in eastern Indonesia, and to their superficial resemblance to the lacertids of Europe (e.g., *Lacerta viridis* and *L. lepida*). *Hydrosaurus amboinensis*, a big agamid lizard, was originally described as *Lacerta amboinensis* Schlosser, 1768, and this species certainly is more similar to *Brachylophus* than to *Tachygyia*. *Brachylophus* was eaten by the early Tongans, but there is no evidence that this was the case for *Tachygyia*.

Recent archeological investigations (Pregill and Dye 1989) on Lifuka Island, north of the Tongatapu Group, show that *Brachylophus* was a regular

food item of the Tongans. Pregill and Dye (1989) concluded that the first few hundred years of human colonization had a catastrophic impact on *Brachylophus*, and may have caused a reduction in average body size among the surviving populations. Similar-sized bones were also found in a Lepita midden on Tongatapu Island. Reduced population size by human predation and shrinking habitat would set the stage for extinction by an introduced predator. We cannot conclude that *Tachygyia* is extinct, but Gibbons was unable to verify its presence with specimens or unquestionable eyewitness accounts. Nor can we conclude, after our recent investigations, that it survives.

Pregill and Dye (1989:507) stated: "Lizards may now be added to the list of oceanic vertebrates whose large-bodied members have become extinct while smaller-bodied forms survived." They may be correct. The mystery remains.

Acknowledgments

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References Cited

Bauer, Aaron M., and Jens V. Vindum
1990 A Checklist and Key to the Herpetofauna of New Caledonia, with Remarks on Biogeography. *Proceedings of the California Academy of Sciences*, Vol. 47(2): 17–45.

Böhme, Wolfgang
1976 Über die Gattung *Eugongylus* Fitzinger, mit Beschreibung einer Neuen Art (Reptilia : Scincidae). *Zoologische Beitrage*, Vol. 27: 245–51.

Dumont d'Urville, Jules Sébastien César
1830–1834 Voyage de Découvertes de l'Astrolabe Exécuté par Ordre du Roi, Pendant les Années 1826–1827–1828–1829, sous le Commandement de M. J. Dumont d'Urville. *Zoologie par MM. Quoy et Gaimard* (Tome IV). Tomes I to IV. Paris: J. Tastu.

Gibbons, John R. H.
1981 The Biogeography of *Brachylophus* (Iguanidae) including the Description of a New Species, *B. vitiensis*, from Fiji. *Journal of Herpetology*, Vol. 15(3): 255–73.

La Billardière, Jacques Julien Houtou de
1800 *Voyage in Search of La Pérouse*. London: John Stockdale.

Langdon, R.
1977 The Maritime Explorers. *In:* N. Rutherford (ed.), *Friendly Islands: A History of Tonga*. Melbourne: Oxford University Press.

Pregill, Gregory K., and Tom Dye
1989 Prehistoric Extinction of Giant Iguanas. *Copeia*, 1989: 505–08.

Rinke, Dieter
1986 The Status of Wildlife in Tonga. *Oryx*, Vol. 20(3): 146–51.